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(54) Title: SYSTEM AND METHOD TO SET UP A COMMUNICATION BASED ON IDENTIFICATION CARDS			
(57) Abstract			
<p>Communications between stations (1) of a network are set up under control of tokens (11) inserted in base units (7-9) at the stations (1), finger-depression of any token (11) causing data identifying the token (11) and its unit (7-9) to be transmitted for read out from a central database unit (27) of data that establishes communication with the station (1) where a paired or other related token (11) is located. The database is updated according to movements from station (1) to station (1) of the tokens (11), enabling related tokens (11) distributed between different users to be used for immediate communication without keying in of location-data. The establishment of communication-connection is signified at the called station (1) by energising an LED (29 Fig 2; 29' Fig 3) within the token (11) or its base unit (9). Alternative tokens (31 Fig 4; 41 Fig 5) with (or without) appropriate interface base-units and operated differently are described, together with communication via the Internet (Fig 6).</p>			

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## SYSTEM AND METHOD TO SET UP A COMMUNICATION BASED ON IDENTIFICATION CARDS

5 This invention relates to communications methods and systems.

According to one aspect of the present invention there is provided a communications method wherein communication between any of a multiplicity of stations is initiated by activating the transmission from one of the stations of identification data derived from a token, the identification data is related through a data-base with data identifying another of said stations, and in accordance with this latter data, communication is established with the identified station.

Communication with the identified station may be set up automatically in response to reading out of the station-identifying data from the data-base. However, this data may instead be read out for supply to the calling station to enable the connection for communication to be set up from that station. Also, although the communication set up automatically or otherwise may be such as to establish a connection for telephone, data or other communication between the two stations, it may instead be simply reflected in an audio and/or visual signal manifested at the identified, called station.

The method may be carried out using pairs or larger groupings of tokens with the tokens of each pair or other grouping related to different stations from one another. In this case the data-base may store in relation to each pair or other grouping, data identifying the stations to which those tokens are respectively related, such that activation of transmission of identification data derived from any such token is effective to identify through the

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data-base, the station to which the other or each other token of the grouping is related.

As an alternative or in addition, a plurality of tokens  
5 may be all associated through the data-base with the same station. In this case, activation of transmission of identification data derived from any such token when located at another of the stations may be effective to establish communication between this other station and  
10 the station with which the token is associated.

Furthermore, tokens may be used to request a service, and in this case activation of transmission to the data-base of identification data derived from any such token may be arranged to result in transmission of a request for  
15 service to a station that is associated through the data-base with such service. Transmission of the request for service may be accompanied by identification of the station from which the request originated.

20 According to another aspect of the present invention there is provided a communications system for establishing communication between any of a multiplicity of stations, including a plurality of tokens for location at the stations and each operable at any of the stations  
25 for activating the transmission from that station of identification data derived from that token, means providing a data-base that relates the identification data with data identifying another of said stations, and further means operative in accordance with this latter  
30 data.

The stations in the communications method and system of the present invention may be stations of a telephone network, but other networks such as the Internet may be  
35 involved in addition or alternatively.

Communications methods and systems in accordance with the present invention will now be described, by way of example, with reference to the accompanying drawings, in which:

5

Figure 1 is a schematic representation showing a communications system according to the invention;

10

Figure 2 shows details of tokens and a base unit incorporating receptors for the tokens, utilised in the system of Figure 1;

Figure 3 shows details of modification of the tokens and base unit of Figure 2;

15

Figures 4 and 5 illustrate alternative forms of token and base unit to those of Figures 2 and 3, for use in the system of Figure 1; and

20

Figure 6 is a schematic representation of a further communications system according to the invention.

25

The communications method and system to be described with reference to Figure 1 utilises a public telephone network in which a multiplicity of telephone subscriber stations are connected by individual lines or radio channels to telephone exchanges of the network. The exchanges operate conventionally to route calls within the network and to other networks, in establishing communication between calling and called stations. For simplicity, the communications system is illustrated and will be described with reference to Figure 1 in the context of its operation as between just three subscriber stations connected by individual lines to the same exchange.

35

Referring to Figure 1, the telephone subscriber stations 1 are connected by individual lines 2 to the telephone

exchange 3; the three stations 1 shown are distinguished from one another as 1A, 1B and 1C. Each station 1 includes, as shown only for the two stations 1A and 1C, a normal telephone 4 that is connected to the respective exchange line 2 for use in setting up and receiving telephone calls in the conventional manner.

As illustrated for the stations 1A and 1C only, the telephone 4 is in each case connected to the respective exchange line 2 via a control unit 5. The unit 5 serves to connect one or more token-receptors 6 to the line 2 in parallel with one another and the telephone 4. In the case of the illustrated station 1A, three receptors 6 mounted on a common base unit 7 are connected to the line 2 via the unit 5, whereas in the case of the illustrated station 1C, there are nine receptors 6 three on a common base unit 8, two on a common base unit 9 and four linked together by a strap 10. By way of example in Figure 1, tokens 11 are shown inserted in one receptor 6 of the station 1A and in two receptors 6 of the station 1C.

Constructional details of the receptors 6 and tokens 11 are illustrated in Figure 2 and will now be described in the context of, for example, the base unit 9. Two tokens 11 are shown in Figure 2, one as inserted in one of the two receptors 6 of the base unit 9, and the other as aligned ready for insertion in the other receptor 6.

Referring to Figure 2, each receptor 6 has a hollow shell 20 (of plastics, ceramic or other material) that is upstanding from the base unit 9. The shell 20 incorporates a socket 21 for receiving the leading end or nose 22 of an inserted token 11, and a microswitch 23 is located in the socket 21 so as to be closed by the inserted token 11. An antenna in the form of an electrical coil 24 that is located just above a second microswitch 25 within the shell 20, rests on the switch

25 without actuating it. The nose 22 of the inserted token 11 abuts the coil 24 so that depression of the token 11 downwardly by hand, within the receptor 6 acts via the coil 24 against the light, resilient opposition 5 of the switch 25, to actuate the switch 25. (The nose 22 of the inserted token 11 may as an alternative extend through the coil 24 so as to be surrounded by the coil 24 and actuate the switch 25 directly).

10 Actuation of the switch 25 of any receptor 6 in this way, is signalled to the connected control unit 5 (Figure 1) to supply the output of an oscillator (not shown) to the coil 24 transitorily. An oscillation, or pulse of oscillations, in the coil 24 triggers a transponder 15 module 26 of the token 11 to induce into the coil 24 a radio-frequency pulse sequence that is uniquely representative of the token's identity.

Referring also to Figure 1, the control unit 5 on 20 receiving the token-identifying sequence from the coil 24 of the relevant receptor 6, establishes a connection with the exchange 3 via the exchange line 2 individual to its station 1. Having established the connection, the unit 5 signals to the exchange 3 via that line 2, identifiers of 25 the token 11 and the receptor 6 containing it. These identifiers are combined within the exchange 3 with identification of the line 2, and therefore, subscriber station 1, from which the token- and receptor-identifiers were received, and are signalled to a data-base unit 27; 30 the unit 27 is shown in Figure 1 as located within the exchange 3, but it is not necessary for it to be located there provided there is effective communication with it within the system.

35 The data-base unit 27 stores information related to the identifiers of each token 11 used in the system. More particularly, it stores in relation to each token-

identifier, identification of the station 1 (by line-  
identifier) where the token 11 is located, together with  
identification of the receptor 6 containing it at that  
station 1. Each time the unit 27 receives a signal  
5 identifying any token 11, it checks the accompanying  
station- and receptor-identifications against what is  
stored in relation to that token 11 to ensure that there  
has been no change in either its station- or receptor-  
location; if there has been a change, then the stored  
10 identifying data can be updated. Thus, the data-base  
unit 27 keeps track of each token 11 to update the data-  
base if necessary, each time the token 11 is used to  
establish communication. Updating may, however, be  
carried out whenever the location of the token 11 is  
15 changed rather than waiting until communication is to be  
established by it; the token in this case is operated  
according to a protocol that provides for up-dating of  
the data-base without the setting up of communication.  
This enables any such token 11 (or merely its new  
20 station) to be called without the possibility of having  
to wait for a call to be made from it to update the data-  
base, or the need to establish communication with, say,  
the exchange 3 or unit 27 beforehand. It is simply  
necessary to address the data-base of the unit 27 with  
25 the relevant token-identifier, so as to read out the up-  
to-date station-identification and, if necessary,  
receptor-identification.

The exchange 3 responds to station- and receptor-  
30 identifications read out from the data-base of the unit  
27 to transmit signals to the control unit 5 of the  
identified station 1 via its line 2. The signals include  
identification of the relevant receptor 6 at that station  
1, and the unit 5 responds by energising the coil 24 of  
35 the identified receptor 6 with high amplitude  
oscillations. The oscillations supplied to the coil 24  
induce current into a coil 28 of the token 11 causing a

light-emitting diode (LED) 29 connected within the token 11 to the coil 28, to emit light so as to indicate the calling condition for that token 11. Communication can then be established to and from the called station 1 5 simply by use of the telephone 4 using the line-connection established at the exchange 3.

The communications system described, may be used in any 10 of three main modes of operation; the three modes may be used concurrently within the same system, and the same receptors 6 may be used selectively for any of the three modes. In a first mode, a pair of 'identical' tokens 11 is used, the two tokens of the pair being used respectively by two persons to facilitate communication 15 between them; in particular a person may purchase the pair of tokens 11 and give one to a friend or relative, keeping the other for himself/herself. Each person inserts his/her respective token 11 in a receptor 6 at his/her own station 1, or at some other station 1 to, or 20 from, which he/she is to have communication. Insertion of the token 11 into the receptor 6 causes the station- and receptor-identifications of that token 11 to be entered into the data-base of the unit 27.

25 The tokens 11 have identifiers that are related to one another such that the unit 27 recognises their pairing with one another. In particular the tokens 11 may have unique identifiers that differ from one another only slightly, say, in one digit, or may even have the same 30 identifiers as one another; in this latter case, the unit 27 must discriminate intelligently between the two when up-dating of stored data is required upon change of token-location (where there is no difference between the tokens, it may be necessary for discrimination purposes 35 as required, say, for automatic billing, to allow the location of only one token to be changed at a time). Nonetheless, the unit 27 acts when either of the pair of

tokens 11 is depressed, to read out the station- and receptor-identifications applicable to the other token 11. The consequent emission of light by the LED 29 of this other token 11, indicates to the person to whom it 5 belongs, that the person having the paired token 11, has depressed that token 11.

The emission of light by the LED 29 may therefore be understood as a communication, whether complete in itself 10 (for example as a signal of friendship or other emotion), or to indicate that the other person is wishing to establish communication by telephone or other means. In the latter regard, the exchange 3 acts to interconnect the lines 2 of the stations 1 of the paired tokens 11 so 15 that telephonic communication can take place using the telephones 4 at those stations 1 without the necessity for the usual dialling-in of numbers in setting up the connection. The call is set up between the two persons automatically, simply when one of the paired tokens 11 is 20 depressed, and this applies irrespective of any moves they may make from one station 1 to another within the system. Moreover, each person may have paired tokens 11 with any number of other persons.

25 The second mode of operation is where each person involved has a supply of identical tokens 11 that are each recognizable by the unit 27 (through the token-identifier used) as associated with a particular telephone station 1 (the unit 27 keeps track through an 30 updated registry of the tokens 11 as described above, so as to ensure that the current station-location is always known irrespective of change of station 1). The tokens 11 are exchanged one for one, with the tokens 11 of other persons, much in the same way as business cards are 35 exchanged. When one of the persons wishes to call another, he/she simply inserts the token 11 received from that other person in a receptor 6 at any station 1 (if it

has not already been inserted there) and depresses it to transmit the token- and receptor-identifications to the exchange 3. The unit 27 acts to identify the station 1 associated with the identified token 11 and cause the 5 exchange 3 to call it and establish the appropriate line-connection between that station 1 and the station 1 from which the identifications were received.

Where the calling person is using the tokens 11 he/she 10 has received, from only one individual station 1 (or a station 1 identified specifically for this purpose to the unit 27), the data-base unit 27 may include provision for relating the station 1 from which the call originates 15 with the token-identifier peculiar to the person using that station 1. In these circumstances, the exchange 3 may activate the unit 5 of the called station 1 such that the LED 29 of the token 11 having that identifier, if engaged with a receptor 6 there, emits light to indicate who has initiated the call.

20 In the second mode of operation of the system of Figure 1 described above, each person involved has his/her own individual tokens which are exchanged one for one, with the tokens of other persons, and the data-base retains 25 for each token, information (updated as necessary) relating to its station-location.. As an extension to this mode of operation each token carries a code linked to the relevant individual's station-location as before, but the tokens used have a read-write capability. If 30 after tokens have been exchanged between two individuals, say parties A and B, party A depresses or otherwise actuates the token he/she received from party B ('B-associated token'), the system responds to this to determine whether there is a token associated with party 35 A ('A-associated token') at the station identified with the actuated B-associated token.

A call may be set up to this latter station whether or not the A-associated token is entered there, but if the A-associated token is entered there, then the system is also active to write into that token the identification code of the station where the B-associated token is located. The identification code of the station where the B-associated token is located is also written into the B-associated token so that both tokens now store a unique combination of codes. With this unique combination of codes stored in both tokens they may now be used in the manner of the 'identical' tokens utilised for the first mode of operation described above with reference to Figure 1. That is to say, the tokens may be used for communication between the parties A and B between any of the stations, not just between the stations associated with them in their first use.

It is not essential that the tokens exchanged between parties A and B are first used in the stations associated with those individuals; however, as a safeguard, data written on the token may need to be confirmed when the token is first used. For example, it may be arranged that the B-associated token can be first used by party A at a station other than the station associated with party A, provided he/she when using the B-associated token at some other station also keys in or otherwise enters from that station, identification of his/her associated station. This enables the system to establish a correct relationship between the tokens and encode them appropriately.

In the third mode of operation, the token-identifier is related to the station 1 from which a range of services can be obtained, and which of those services is selected. The token 11 is used in this case whenever that selected service is to be requested, depression of the token within a receptor 6 causing the token-identifier to be

transmitted to the unit 27 such that a request for the selected service is put through to the relevant station 1 with identification of the station 1 from which the request originated.

5

If, with this third mode, the token 11 appropriate for requesting a particular service is retained within a receptor 6 at the service-requesting station 1, then indication of the availability of new information about 10 the service, can be given through that token 11. In appropriate circumstances, distribution of the tokens 11 for service, can be restricted, so that only selected clients can benefit from the service offered.

15

There are many variations that may be made to the system. In particular, it is possible for the function of the LED 29 in indicating the token 11 being called, to be incorporated in the receptor 6 or its base unit (the base unit 7, 8 or 9) such that it is the receptor or base unit 20 into which the called token 11 is plugged, rather than the token 11 itself, that emits light. Modification of the receptors 6 of the base unit 9 and of the tokens used with them, on these lines, is illustrated in Figure 3. Figure 3 corresponds to, and is essentially the same as, 25 Figure 2 with the exception that the modified tokens 11' in this case omit the LEDs 29 and coils 28, and LEDs 29' are instead incorporated in the modified receptors 6'. The LED 29' of each receptor 6' is connected so that it is energised to emit light, directly rather than via the 30 antenna coil 24', from the unit 5 of its station 1.

35

It is possible to omit receptor-identification data from communication to, and storage in, the data-base. In this respect, the unit 5 (or the one or more base units such as the base units 7, 8 and 9, connected to the unit 5) of each station 1 may store data that relates the identifiers of the tokens 11 at that station 1 to the

receptors 6 containing them; the exchange 3 in these circumstances may transmit to that station 1 the identifier of the called token 11 so that the appropriate receptor 6 is selected at the station 1. Storage of such data in the units 5 is not even necessary if the tokens 11 are polled in turn until response is received from token sought. Additionally, storage is not required if the tokens 11 (for example, by means of their transponder modules 26) are selectively-addressable, then it is only 5 the particular token 11 identified by the token-identification received by the unit 5, that responds to confirm that the token 11 required is present (this response can be used at the station 1 for signalling and/or control purposes).

10  
15  
Each station 1 may have any number of receptors 6, and although in the example described above with reference to Figure 2, signal transmission between receptor 6 and inserted token 11 is carried out by radio-frequency pulses, it may be carried out via electrical contacts, 20 infra-red transmission or by use of magnetic induction or any combination of these; similarly, in that example, energisation of the LED 29 within the token 11 may be made via electrical contacts instead of, or in 25 combination with, use of magnetic induction.

The tokens 11 described above are activated to transmit data, by depressing them within their receptors 6. Activation may, however, be by other means, and for 30 example may be by moving the token in some other way, by voice or other sound stimulus, or by laser or other light beam. An alternative form of token and mode of operation in relation to its base unit, will now be described with reference to Figure 4.

35  
Referring to Figure 4, the token 31 in this case has an irregular form and incorporates a transponder module 32.

Actuation of the token 31 to initiate a call involves bringing the token 31 up to a button-push 33 of a base unit 34. The button-push 33 is depressed by hand, or by pressing the token 31 down onto it to displace an 5 electrical coil 35 downwardly onto a micro-switch 36 within the base unit 34. This leads to energisation of the coil 35 from an oscillator (not shown) to trigger the transponder module 32 and transmit its token-identifying pulse sequence back into the coil 35.

10 The form of base unit 34 illustrated in Figure 4 may be common to a plurality of tokens kept together or otherwise near the unit 34. The unit 34 may incorporate the facility for emitting an audio or visual signal 15 (which may include identification of the token being called), so that incoming calls may be dealt with.

Radio-frequency communication may be used for interaction with selectively-addressable tokens as illustrated in 20 Figure 5. In the arrangement of Figure 5, tokens 41 for use in conjunction with the relevant telephone line 42 of a telephone 43, are placed within a dish-shaped receptacle 44 that forms part of a base unit 45. The unit 45, which is connected to the line 42 in parallel 25 with the telephone 43, incorporates an LCD visual display 46 and a radio antenna (not shown) hidden under the rim 47 of the receptacle 44.

A unit 48 corresponding to the unit 34 is connected to 30 the unit 45 for use in reading the identifier of each token 41 before it is put into the receptacle 44. This enables the location of the token 41 to be registered in the data-base so that calls to that token 41 are appropriately directed to the unit 45. Each such call 35 received by the unit 45 results in energisation of a lamp 49 of the unit 45 and of its antenna. The antenna is energised with a radio-frequency signal related to the

identifier of the called token 41, and that specific token 41 (when within the receptacle 44) is activated by the transmitted signal to provide the required radio-frequency response; an LED within the activated token 41  
5 may be energised if the transmitted power is strong enough. The radio-frequency response from the token 41 is received via the antenna for processing within the unit 45 and possible generation of a reply signal for transmission on the line 42.

10

The display 46 may provide indication of the identity (e.g. by name and/or telephone or other number) of the caller, and may also indicate the identity of the called token 41. Furthermore, the display 46 may be utilised in conjunction with the unit 48 for confirmatory purposes when registering the identifiers of tokens 41 placed in the receptacle 44. The unit 48 may also be used, and the display 46 with it, when tokens 41 are removed from the receptacle 44, to signal this fact to the data-base via the line 42; the different circumstances of use may be signalled by bringing the token 41 to the unit 48 and operating its button-push only once, say, when logging the token 41 on, and twice in rapid succession when logging it off from relationship with the unit 45.

25

The necessity of providing each station of a system with some form of base unit as an interface between the tokens and the system, can be avoided by including within the token itself means suitable for direct transmission of data into the system. For example, where the system is based on a telephone network, a DTMF-tone transmitter may be included within the token. In this case the tone transmitter can be used to emit tone signals encoded in accordance with the token identifier and other data for transmission down the telephone line via the microphone of the telephone handset. The token may have provision for operation in either of two modes selected by

actuation of a switch or button, one mode for use solely in updating the data-base as to the location of the token (and thereby enabling calls to be made to the station to which the token was last introduced), and the other for 5 use in establishing a call from the token.

Instead of including tone transmitters in the tokens, each token-user may be provided with a portable unit that includes a tone-transmission capability, this being 10 activated in response to insertion of a token into it (or depression of any token carried by it) to read data from the token and emit that data in tone-coded form. The portable unit, which could be used to store identifiers and data relating to the tokens to be used with it, may 15 include provision for operating it selectively in a mode for up-dating the data-base as to the location of the unit and those tokens, or a mode for setting up communication. A comparable function can be carried out where the interface of a base-unit is still used, 20 utilising a 'master' token that stores identifiers and data relating to other tokens.

Although the above example of a communications system in accordance with the invention has been described in 25 relation to a public telephone network (PSTN), the network need not be of this nature but may be, for example, a cellular communications network, and need not be public but may be, for example, a local, small or private exchange system. Moreover, the invention is 30 applicable outside the context of telephone communication. It may be used alternatively, or in addition, in connection with a computer network, and/or in conjunction with video and/or other form of communication; the nature of the station in this regard 35 and whether it has single or multiple communication functions is not significant to the fundamental operation. As one example, the system may be used in

exhibitions and fairs, large offices or other buildings and areas for the principal purpose of readily locating individuals as they move about within those buildings or other areas. In this case, each individual may be  
5 assigned a pair of tokens one of which is used by the individual to signify his/her location as he/she moves about by entering it in the nearest base unit of a multiplicity of such units distributed throughout the building or area (for example, on the exhibition stands,  
10 or in the offices), and the other of which is used centrally or by another person to obtain a read out of that location transmitted by the relevant base unit and vice versa.  
  
15 As another example, the invention may be utilised in conjunction with the Internet, and a system of this nature is shown in Figure 6 and will now be described. Only six of the multiplicity of stations involved in the system are shown in Figure 6; the stations are identified  
20 generally as stations 51 and specifically as stations 51A to 51F.

Referring to Figure 6, the six stations 51 are connected via the public (international) telephone network 52 (or  
25 possibly directly) to have access to the Internet network 53, through servers 54 (although the stations 51 are shown in Figure 6 linked to the network 53 through different servers 54, there is no significance in this). Each of stations 51A to 51E includes a base unit 55  
30 (corresponding in general form to that of the base unit of Figure 2 or 3) for receiving appropriate tokens 56 and communicating with a data-base server 57 of the Internet network 53. A combined telephone and base unit 58 including provision for receiving tokens 56, is involved  
35 in station 51F for the same purpose.

The base unit 55 in each of stations 51A to 51C is connected to the telephone network 52 via a respective personal computer 59. The stations 51A and 51D to 51F each include a telephone 60 that may be used in addition 5 to the computer 59 for communication, whereas communication with each of the stations 51B and 51C is limited to data communication via the computer 59 (unless the computer 59 includes a voice facility). For stations 51D and 51F the units 55 and 58 include a suitable modem 10 and dialler to enable access to be gained to the server 57, whereas a separate modem-dialler 61 is utilised in the station 51E.

Communication is established automatically with the 15 network 53 via the telephone network 52, whenever there is activation of any of the tokens 56 within the unit 55 of any station 51A to 51E, or within the unit 58 of the station 51F. The server 57, which has a data-base for storing details including the identifiers of all tokens 20 56 utilised, is accessed to register in, and if necessary update, information concerning the token and its location registered in the data-base. There is response of the server 57 to the call in accordance with the mode of operation applicable to the activated token 56, and in 25 this regard the server 57 may act to set up an appropriate data-transmission connection via the networks 52 and 53, or to communicate information to the calling station 51 to enable such a connection to be set up from that station. In the latter respect also, a message sent 30 by one station 51 to another could be stored either directly in the station 51 of the called (or even the calling) party or in the data-base of the server 57 or of a server 54, to be collected at some later opportunity by the called party.

35

Although in the examples of systems described above with reference to Figures 1 and 6, each station 1 and 51 has

an individual line, this is not necessarily the case. Where the stations share lines, they may have individual, identification codes that are registered at the data-base unit 27 or server 57 together with their respective line-locations; each station is then responsive to signals on the line connected to it only if the code individual to that station is included in those signals.

It is to be noted that no programming or keying in of data is required of the user of the system of Figure 1 or Figure 6 to enable him/her to make use of the communications method and system of the present invention. Complication for the user is avoided in that he/she is required merely to interact with one or more tokens; as for example in the systems of Figures 1 and 6, by inserting and depressing the token 11 or 56 wherever and whenever communication is required. Moreover, although in the above-described systems, the stations 1 and 51 are all fixed, one or more of them may be mobile. Also, it is possible for the one or more token-receiving receptors used by an individual to be at a fixed station, but for the individual to receive calls relayed from that station to him/her elsewhere, for example, via mobile telephone. In this case, some of the tokens entered into the receptors, or some of the receptors into which tokens are entered, may be such as to grant priority of access whereby calls associated with those tokens or receptors are relayed directly through to the individual, but calls associated with the other tokens or receptors are transferred to a recorded-message and/or message-recording facility.

Where an individual or enterprise is issued with more than two tokens for retention of one of the tokens for their own use and distribution of the remainder to others, it is possible to arrange that actuation of any one of the group of issued tokens will establish

communication with all the others of the group. On the other hand, this group-access function may be limited to only one (or more) of the group. For example, an employer may be issued with ten tokens, a first of which 5 is for his/her use alone and the other nine of which are distributed to his/her staff. The same code is carried by all ten tokens but the first token has an encoded flag indicating a 'master' status, whereas those distributed to the staff are encoded with a 'slave'-status flag, such 10 that all staff may be contacted and/or located using the first token, but only the employer can be contacted and/or located using any of the other nine tokens.

The tokens used in any situation may be of a form that 15 includes a facility to enable data contained within the token to be changed or modified; for example, with the embodiment of token described above with reference to Figure 2, the transponder module 26, may have a read-write capability. Data may be simply transferred to, and 20 copied from, twin or otherwise-related tokens, or to or from any device connected to either receptor unit.

The provision of tokens having a read-write capability 25 enables a user to encode a token according to a unique code supplied from a central station operating the database. The same code could be communicated to another user for use in encoding a 'paired' token or tokens and facilitate the setting up of communication between the two (or more) users.

30 Furthermore, read-write tokens may be provided having the capacity to store the identifiers of other tokens together with a user's personal code (which may be the identifier of the user's station or base unit). The user 35 could use this 'master' token to store the identifiers of those of his/her tokens that he/she wishes to use for communication (as calling or called party) while away

from his/her station. The 'master' token can then be used anywhere the user chooses, to advise the data-base of the changed locations for communication, of all the tokens together, or for checking calls and/or messages 5 directed to any of those tokens.

Tokens having a read-write capability may be utilised for money transactions. For example, each token may have a monetary value assigned to it (different tokens may have 10 different monetary values) that is debited in accordance with the transactions for which it is used either at point-of-sale or bank stations, or even at a 'home' station. The token may be re-charged to restore or increase its monetary value by setting up communication, 15 possibly from the 'home' station, with a bank or credit source. For security purposes, it may be arranged that re-charging can only be carried out when the token is entered in the 'home' station where it was initially charged, the identity of this station having been written 20 (burnt) into the token during such charging.

Where twin tokens are used, perhaps shared between two individuals, they can be used to transfer monetary value from one to the other (in one direction only or in either 25 direction) through the communications system without the need for entry of identification data of the token; keying in, or other entry, of a short access code may nonetheless be required for the purposes of a separate security protocol. The amount to be transferred can be 30 keyed into a special interface connected to either of the receptor units currently retaining the tokens, or by using the pushbuttons of its associated telephone. As an alternative, transfer could be effected by pressing or otherwise manipulating one of the tokens in its receptor 35 unit; pressing the token might, for example, be identifiable with a certain sum, so that the amount

transferred depends on how many times the token is pressed.

- The proposal for monetary-value or funds transfer between tokens is applicable to a situation in which the monetary-value of a token used by an individual away from home can be re-charged. Re-charging may be directly from the twin token retained at the individual's home, or from his/her bank account using the twin token to provide authority for the transaction and possibly setting up the necessary connection for the transfer. It may be desirable in the interests of security for the token retained at the home station to be entered into its receptor unit only when and if transfer is required. The possible inconvenience of this, however, may be overcome by arranging that the home-retained token has no monetary value in itself and cannot be used otherwise than to enable monetary transfer to take place.
- As an alternative, however, in the situation for example in which one or more individuals are dependent on another person or entity for funds, that other person or entity may use their 'main' token to authorise transfer of funds or monetary value (for example from their bank account) to those one or more individuals, using the 'main' token at any station anywhere. The 'main' token may incorporate a facility for allowing funds to be drawn by the individuals without special authority, for example, up to a certain limit and/or under a restriction of rate of drawing.

**Claims:**

1. A communications method wherein communication between any of a multiplicity of stations is initiated by activating the transmission from one of the stations of identification data derived from a token, the identification data is related through a data-base with data identifying another of said stations, and in accordance with this latter data, communication is established with the identified station.
2. A communications method according to Claim 1 wherein communication is established with the identified station automatically in response to reading out of the station-identifying data from the data-base.
3. A communications method according to Claim 1 or Claim 2 wherein the communication established with the identified station is such as to result in activation of a related token located at that station to emit an audio and/or visual signal indicative of establishment of such communication.
4. A communications method according to any one of Claims 1 to 3 wherein pairs or larger groupings of tokens are used, the tokens of each pair or other grouping are related to different stations from one another, and the data-base stores in relation to each grouping data identifying the stations to which those tokens are respectively related, such that activation of transmission of identification data derived from any such token is effective to identify through the data-base, the station to which the other or each other token of the grouping is related.

5. A communications method according to Claim 4 wherein the identification data of each token within each grouping has a predetermined correspondence with the identification data of each other token within that grouping.
6. A communications method according to any one of Claims 1 to 5 wherein a plurality of tokens are all associated through the data-base with the same station such that activation of transmission of identification data derived from any such token when located at another of the stations is effective to establish communication between this other station and the station with which the token is associated as aforesaid.
7. A communications method according to any one of Claims 1 to 6 wherein tokens are used to request a service, activation of transmission to the data-base of identification data derived from any such token results in transmission of a request for service to a station that is associated through the data-base with such service, and transmission of the request is accompanied by identification of the station from which the request originated.
8. A communications method according to any one of Claims 1 to 7 wherein activation of the transmission from a station of identification data derived from a token is brought about by predetermined interaction between that token and interface means at that station.
9. A communications method according to Claim 8 wherein said interaction is effected by depressing the token with respect to the interface means.
10. A communications method according to Claim 8 or Claim 9 wherein data identifying the interface means is

transmitted together with the identification data derived from the token.

11. A communication method according to any one of Claims 1 to 10 wherein the data-base is updated as to token-location in accordance with the identification data derived from the token and data identifying its location.

12. A communications method according to any one of Claims 1 to 11 wherein the identification data is derived from a transponder carried by the token.

13. A communications method according to any one of Claims 1 to 12 wherein the stations are stations of a telephone network.

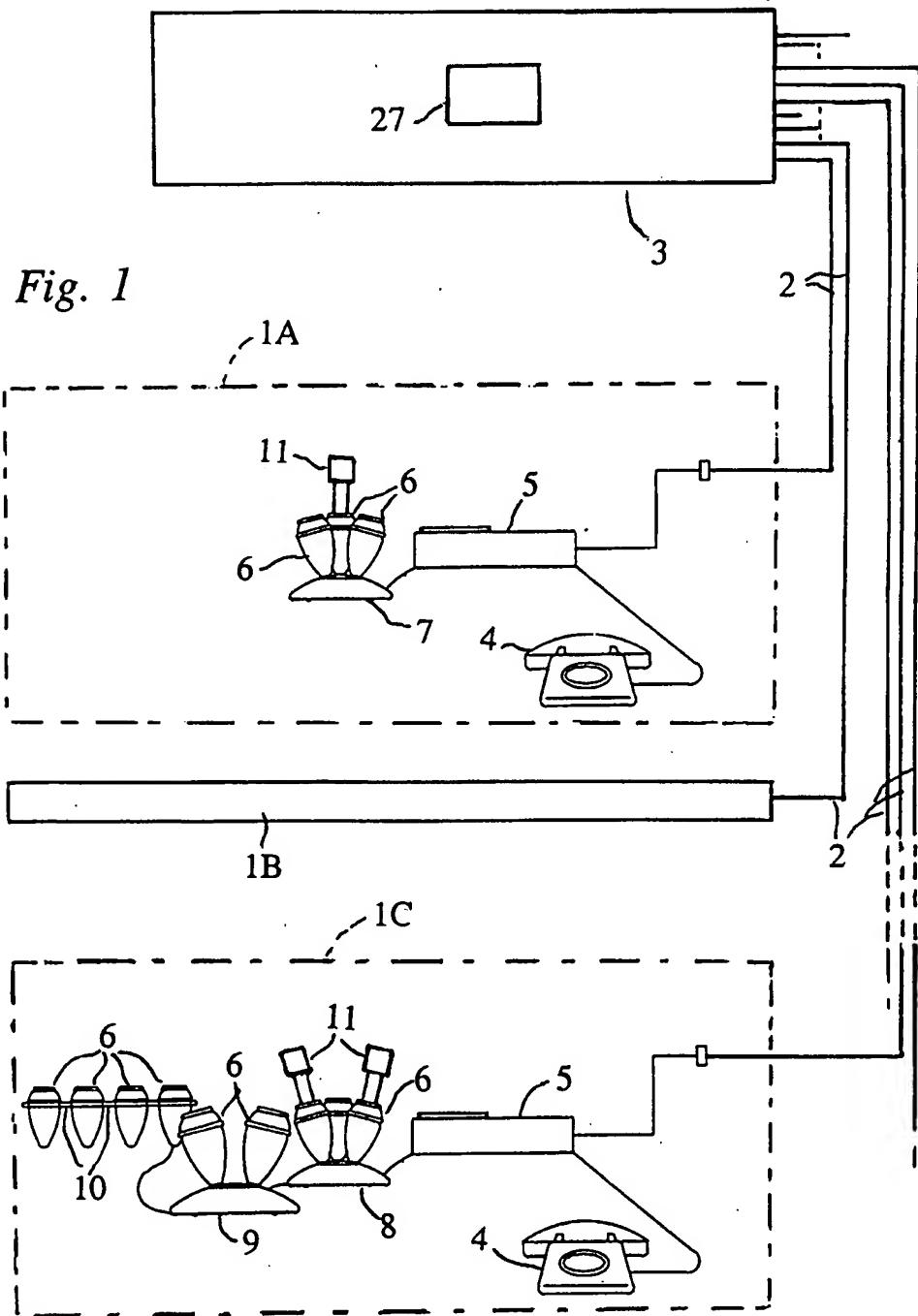
14. A communications method according to any one of Claims 1 to 13 wherein transmission to the data-base of data derived from a token is made via the Internet or other computer network.

15. A communications system for establishing communication between any of a multiplicity of stations, including a plurality of tokens for location at the stations and each operable at any of the stations for activating the transmission from that station of identification data derived from that token, means providing a data-base that relates the identification data with data identifying another of said stations, and further means operative in accordance with this latter data.

16. A communications system according to Claim 15 wherein said further means is operative in accordance with said data identifying another station to establish communication with the identified station.

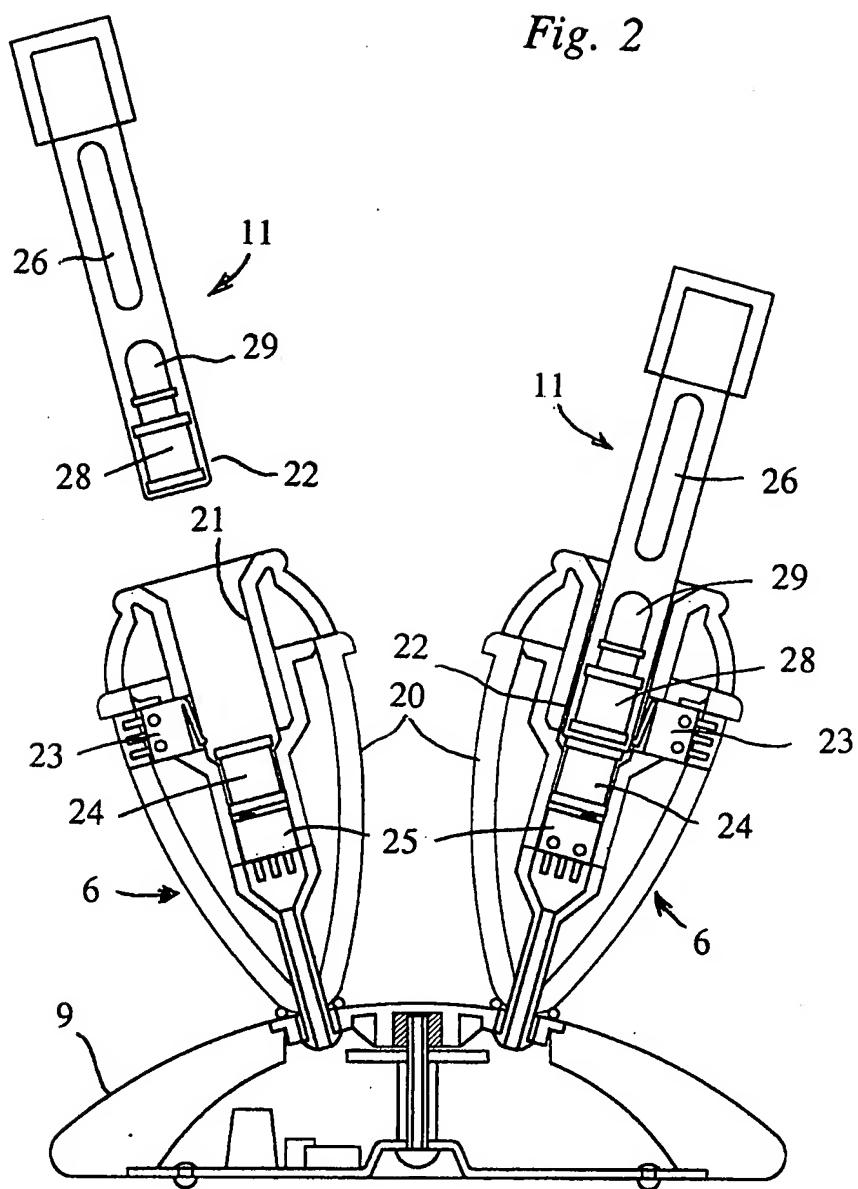
17. A communications system according to Claim 15 or Claim 16 wherein each token includes a transponder that is operable for supplying the data derived from the token.
18. A communications system according to any one of Claims 15 to 17 including interface means located at said stations for predetermined interaction with the tokens to derive said identification data in respect of each such token.
19. A communications system according to Claim 18 wherein token-operation is effected by displacement of the token within the interface means.
20. A communications system according to any one of Claims 14 to 19 wherein communication between the stations and the data-base is via a telephone network.
21. A communications system according to any one of Claims 14 to 20 wherein transmission of data derived from a token to the data-base is via the Internet or other computer network.

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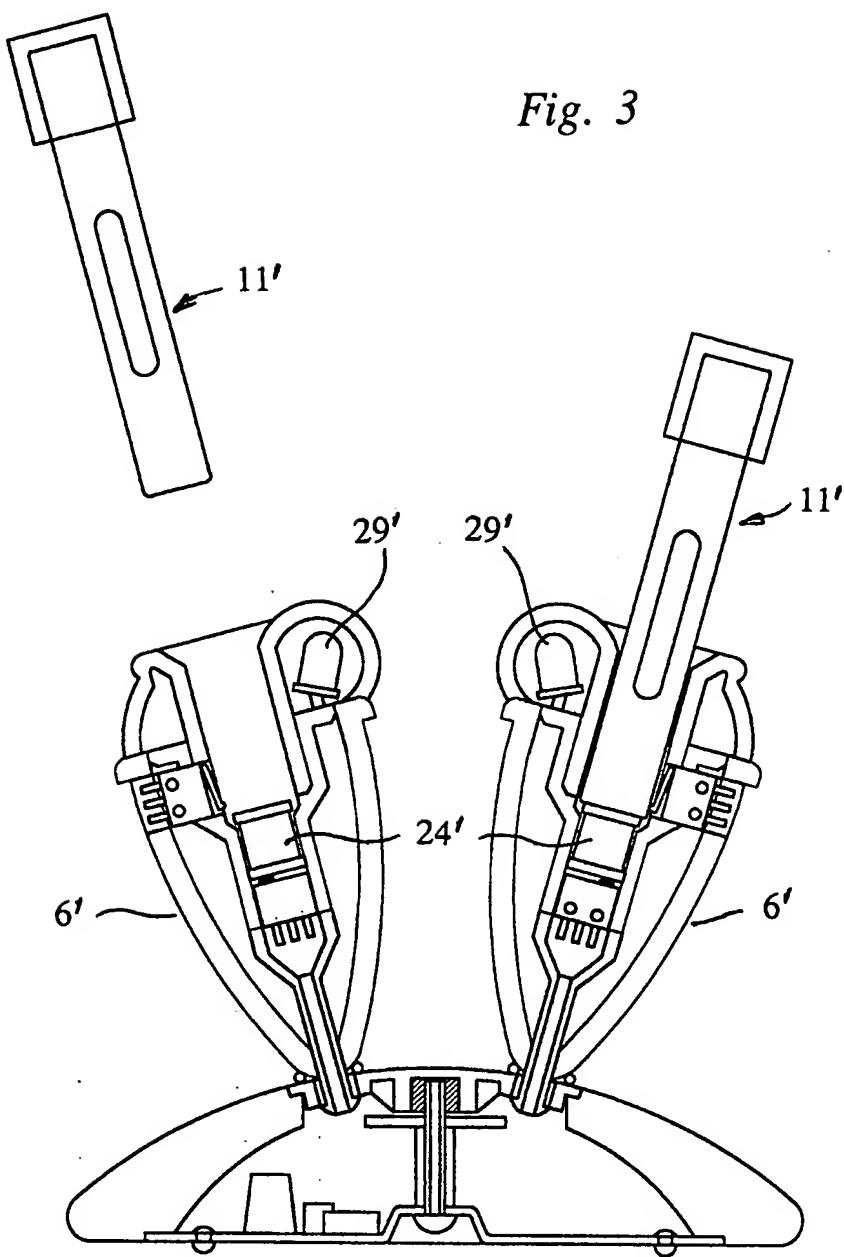
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Fig. 2

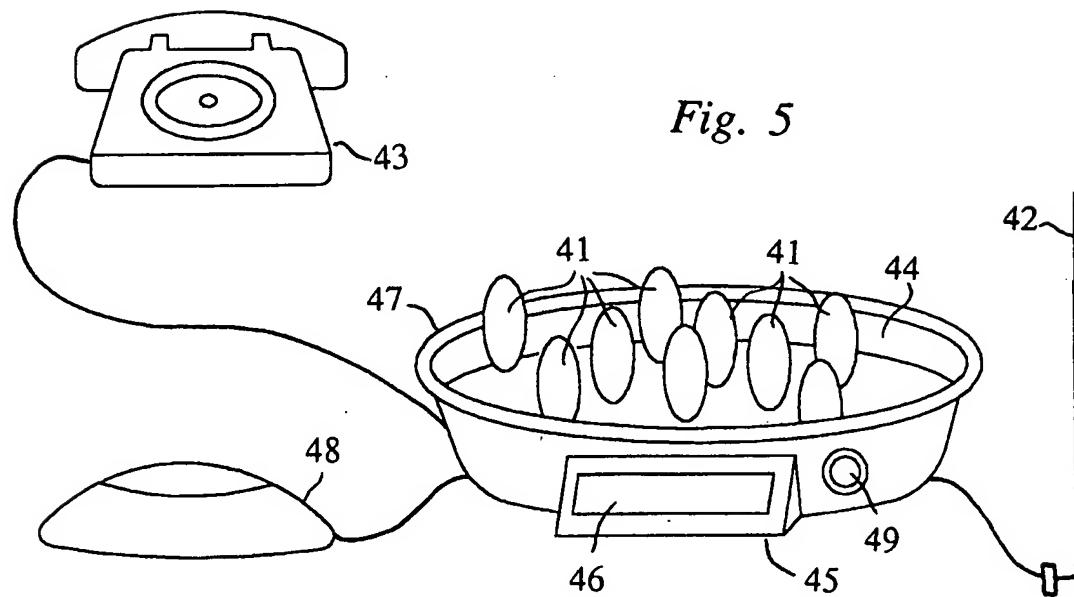
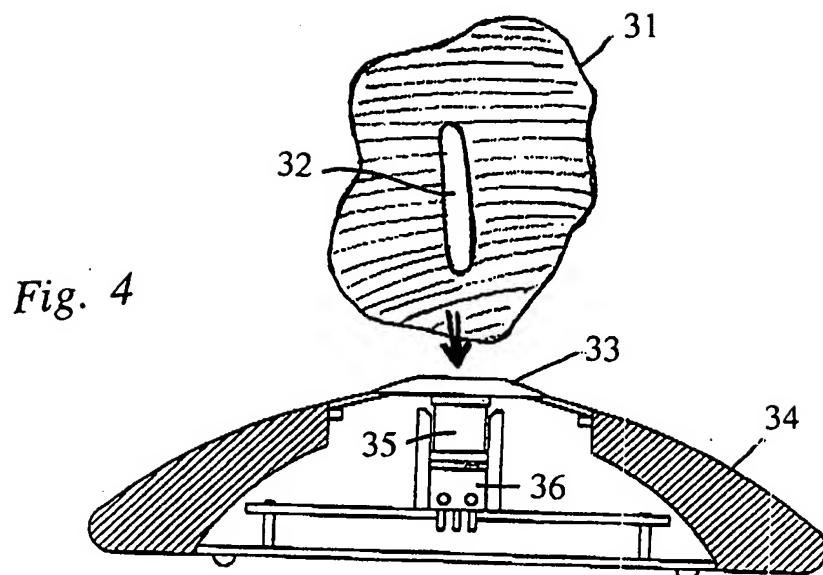


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Fig. 3



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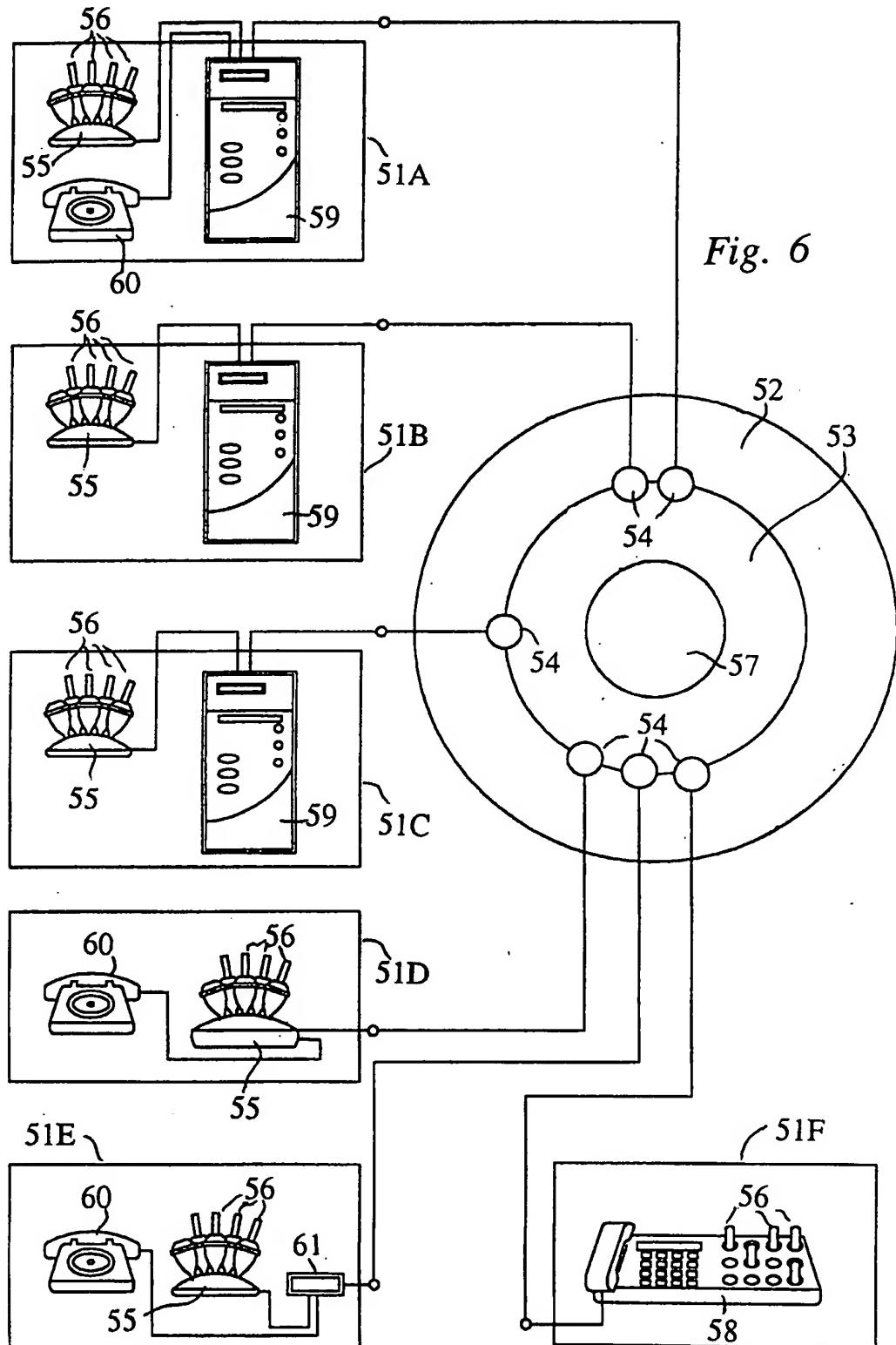


Fig. 6